Exchange 2000 Overview and Upgrade

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Agenda

- What’s New in Exchange 2000
- Before You Start
- Dependence on Windows 2000
- Break
- Upgrade process to Exchange 2000
- ADMT, Active Directory Connector
- Public Folder upgrade
- Directory Upgrades Scenarios
- Flipping the Switch
- Q & A

What's new in Exchange 2000 – End User Benefits

- Real-time Collaboration
  - Instant Messaging
    - Presence information, time-sensitive messages
  - Chat
    - Discussion forums for education, help desk, etc.
  - Conferencing Server
    - Scaleable, real-time on-line video and data conferencing
- Tighter Office integration
  - Save-As: direct access to Web Storage System
- Enhanced Web Client
  - Richer Outlook-like features
- Enhanced collaboration features
  - Workflow engine and tools, OLE/DB, XML

What's new in Exchange 2000 – Under the covers

- Active Directory integration
  - Windows security is Exchange security
- Multiple Databases
  - Increased scalability and reliability
- Web Storage System
  - Native content, all items are URL addressable
- Enhanced Internet Standards support
  - HTTP, SMTP
- IIS integration
  - Web Storage System integration, manages protocols
- New Exchange Management Console(MMC)
- Exchange Topology

Exchange Sites

- Exchange 5.5 Sites defined
  - Administrative Context
  - Routing Element
  - Namespace
- **Exchange 2000 equivalent**

Administrative Group

Routing Group

Active Directory

Feature Demo

Before You Start

- Read the documentation
- Plan, plan, plan, and plan!
- Build a migration team consisting of “ALL” infrastructure groups (AD, OS, Network, and Exchange admins)
- Review existing NT infrastructure
- Review existing Exchange infrastructure
- Consider domain and Exchange server consolidation issues and benefits
- Review potential Windows Sites and Exchange Routing Groups
- Review security access requirements to Exchange folders
- New hardware versus existing hardware
- End User impact during upgrade process
- Create a migration plan and timeline
- Pilot and test, plan some more.

Domain and Exchange Site consolidation issues

- Easier to manage fewer domains.
- OUs can provide necessary group and security delineation
- Caution; ADMT tool does not migrate passwords
- Easier to manage fewer Exchange Servers and Admin Groups
- 5.5 site structure maintained when upgrading
- Can move server in Routing group, not Admin Groups
- Need to consider MSW prior to 5.5 upgrade

Windows 2000 Foundation

- Exchange 2000 Early Adopters

  “The #1 success factor for a successful Exchange deployment is a successful Windows 2000 deployment”

Exchange and Active Directory

- Active Directory defines the Forest
- Exchange Organization is Forest boundary
- The Active Directory Schema must be extended for Exchange 2000
  - New Exchange-specific objects are added to the directory
  - Additional information will replicate
  - Global Catalogs, and Domain Controllers are effected by extensions
- Existing objects in the Active Directory will be used by Exchange
  - Users and Groups are now mail recipients, and used by Exchange

Exchange and Active Directory …

- Use of Domain Controllers (DCs) and Global Catalogs (GCs) by Exchange
  - DCs will be use for all authentication
  - GCs will be used for message routing and Address Book features by servers AND clients
- Exchange uses Windows 2000 Sites to determine which DCs and GCs to use
- Native-mode Domains may be needed by Exchange to handle “group” permissions
- Exchange 2000 will support NT4 user accounts
  - Disabled Win2k user mapped to NT 4 security principal
  - When will they be upgraded to Windows 2000?

Windows 2000 Group Types Local/Global Groups

- Security implications
  - Local – Can only apply to resources within the same domain as the group itself, but contains members from any domain
  - Global – Can be applied to resources anywhere but can only contain members from the same domain where the group is defined
- Can be created in both mixed and native mode domains
- Group membership published to local domain GC's only
  - MAPI client access limitations
  - DL expansion limitations

Windows 2000 Group Types
Universal Groups

- Can be used for permissioning resources anywhere
- Universal security groups can only be created in native mode domains
- Universal distribution groups can be created in both mixed and native mode domains
- Group membership published to all GC’s
- Equivalent to Exchange 5.5 DL’s

Resource Mailbox Issues

- Definition
  - Multiple mailboxes with same Primary Windows NT Account
- Issue:
  - In AD each user object can only be matched to one mailbox
  - ADC should map personal mailbox to NT account

Resource Mailbox Solution

- Set extension-attribute-10 with the value “NTDSNoMatch” on **ALL** resource mailboxes
- Run “NTDSNoMatch” tool
  - Searches Exchange 5.5 directory for ambiguous associated-nt-accounts
  - Creates CSV file for import back into Exchange 5.5
  - Refer to KB article **Q274173**

Exchange Schema Extensions

- Schema will be extended when:
  - When Exchange Server is installed (Single Domain)
  - First when Exchange 2000 Active Directory Connector is set up (Partial)
  - Finally Forest Prep is run from Exchange Setup (Complete)
- #of Objects and attributes
- Global Catalogs will be rebuilt on each schema extension

Prepare The Forest

- “Forest Prep” - Special setup for forest-wide operations
  - Extends the schema
  - Creates the Exchange ORG and sub containers in the DS with info from 5.5
  - Delegates the first Enterprise Exchange Administrator
- Requirements to run Forest Prep:
  - 5.5 Admin permissions on Site, and on Configuration container
  - Enterprise and schema admin perms

Prepare the Domain

- "Domain Prep" special setup
  - Run in each domain where Exchange 2000 will be, and in any domain with "Mail-enabled" recipients
  - Creates groups, assigns permissions
    - "Exchange Domain Servers" (Global Group)
    - "Exchange Enterprise Servers" (Local Group)
- Account must have Domain Admin permissions on current domain

Administration Permissions

- All done with “Delegation Wizard”
  - Exchange Full Administrator
    - Total control of Exchange objects, and Exchange attributes
    - Delegate permissions to other administrators
  - Exchange Administrator
    - Total control of Exchange objects, and Exchange attributes
  - Exchange View Only Administrator
    - View-only permissions on Exchange objects

Preparation for installation of Exchange 2000

- Windows 2000 Advanced Server recommended
- IIS and NNTP required
- Windows 2000 SP1 required
- Hotfix **Q271976** required
- Upgrade 5.5 servers to SP3
- Install Exchange Server

10 Minute Break

How to Upgrade

- In-place Upgrade
  - Will NT 4 domain be upgraded in-place?
  - Any need for domain re-structuring or consolidation ?
  - First upgrade NT 4 server to Windows 2000 ?
- Move mailbox Upgrade
  - Least risky option
  - Time with server hardware refresh ?
- Leapfrog upgrade
  - Domain re-structuring or consolidation
  - New enough hardware and spare(s)

In-place Upgrade

- Upgrade Windows NT 4.0 to AD first
- Run ADC to merge mailbox information
- Back-up Server and know disaster recovery procedures (just in case) (Q264309)
- Upgrade 5.5 SP3 Server to Exchange 2000
- Plan around minimizing impact to users
  - Store is upgraded very efficiently & quickly compared to 5.5

Move mailbox & Leapfrog Upgrade options

- Prepare AD for Exchange 2000
  - Exchange ADC or ForestPrep
- Install ADC & Populate the Directory
- Install the first Exchange 2000 server by running Setup, and join a 5.5 site
- Move mailboxes to new or spare Server
- Migrate Public Folders, Connectors, etc..
- ADMT to migrate user accounts & AD Clean ?

Prepare the AD for Exchange

- Schema will be extended when:
  - First when Exchange 2000 Active Directory Connector is set up (Partial)
  - Finally Forest Prep is run from Exchange Setup (Complete)
- Global Catalogs will be rebuilt on each extension

Populate The Directory

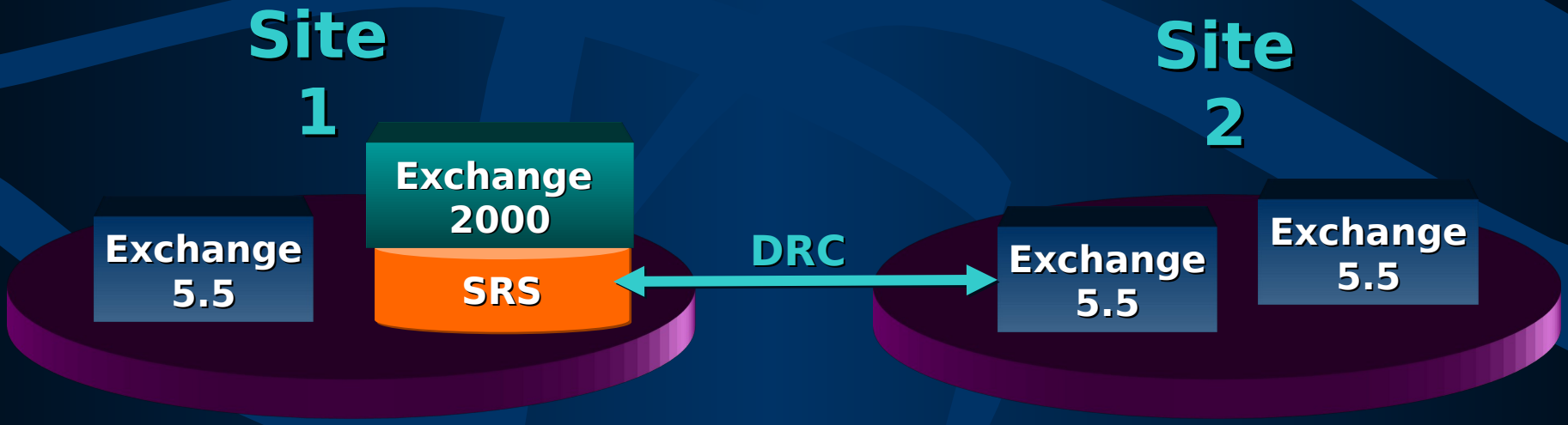
- At minimum ADC must be installed
- Populate Active Directory with Exchange 5.5 recipient information using the Active Directory Connector (ADC)
  - Create a User Connection Agreement (CA) to match 5.5 mailboxes and DLs with existing objects in Active Directory
    - Will need a CA to each site that will be upgraded
    - Watch out for and clean up accounts with multiple mail boxes

Setup on the First Server

- Exchange objects created in Active Directory
  - Admin Group, Server, Storage Groups, etc.
- Active Directory Connector Modified
  - Creates a Config CA and replicates 5.5 site information and objects into Active Directory
- SRS Created
  - Used for 5.5 replication within a site and for 5.5 directory bridgehead
- RUS created
  - Adds server to Exchange Domain Servers
- Software copied and services started

Site Replication Service

- Exchange 2000 hosted service that is backwards compatible with Exchange 5.5 Directory Replication
  - Enables Inter-Site replication between an Exchange 2000 server and another site



Recipient Update Service

- Process built into the System Attendant to update recipient objects
- Polls the AD (similar to ADC) for changes
  - based on the Update Sequence Number (USN)
  - Done via LDAP
- Processes recipients based on policies
  - Address Lists & Recipient Policies
- Must exist for every Exchange Domain

Demo ADC

Upgrade The Mailboxes

- Migrate users from Exchange 5.5 to Exchange 2000
  - Simple administration UI to move users
  - Must be in same Admin Group / 5.5 site
  - Extremely important that Exchange 5.5 directory information is replicated to AD BEFORE migration
  - 1 user per mailbox PLEASE !

Demo

Move Mailbox & Mixed Org Mgmt

Upgrade The Public Folders

- Migrating Public Folders from 5.5 to Exchange 2000
  - Replicate Public Folder names into Active Directory through ADC
    - Setup Public Folder CA BEFORE adding Public Folder store
  - Replicate Public Folder Hierarchy into Exchange 2000
    - Happens automatically via mail to any new Public Folder store that is created

Upgrade The Public Folders

- Replicate content into Exchange 2000
  - Setup content replicas, OR
  - Upgrade 5.5 Server with a Public Folder
- Note:
  - Universal Security Groups are used for access to folders
  - Watch out for Zombie Users !

Demo ADC Public Folder Connection Agreement

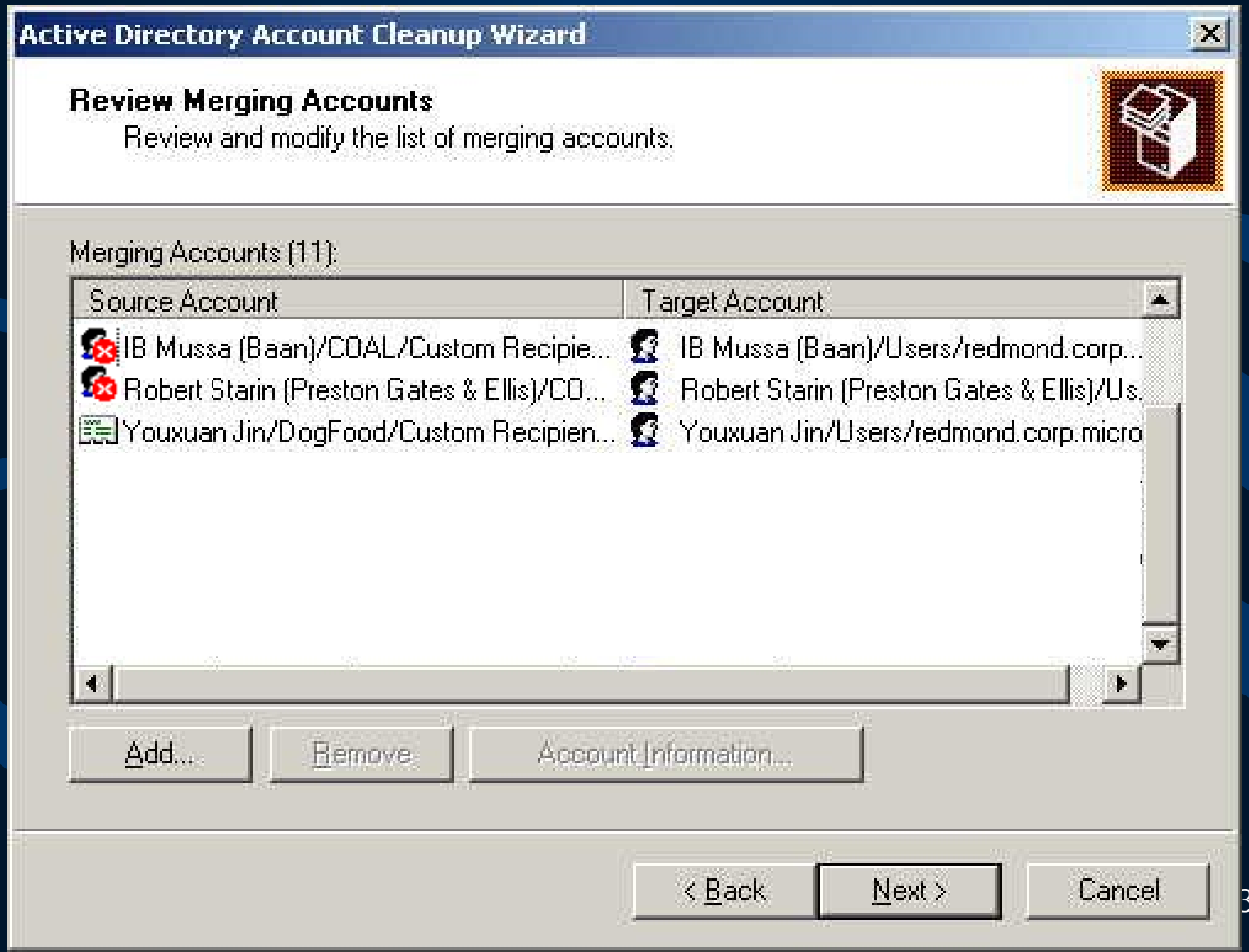
Upgrading Other Areas

- Site connectors, and directory replication connectors
  - Upgrade server that is running connector, OR
  - Reconfigure target to Exchange 2000 server
- Internet Mail Connector
  - Migrate by creating new SMTP Connector, OR
  - Upgrade (Minor reconfiguration will be needed)
- OWA
  - No need to upgrade
- Other areas continue to work after Setup
  - Other Connectors, Event Scripts, KMS, NNTP

Upgrading Exchange and NT4 to AD – Will there be twins?

- Option 1. Completely upgrade NT4 to AD prior to deploying ADC
  - ADC will match with existing accounts and avoid twins
- Option 2. Deploy ADC prior to upgrading NT4
  - ADC will first create new accounts that later will have a twin after NT4 upgrade
    - Use ADCLEAN.EXE to cleanup twins
  - Using ADMT after ADC will merge users & clone SID

Account Cleanup Wizard



Flip The Big Switch!

- Once all servers are Exchange 2000, use admin to set native mode
  - Remove ADC and any SRS BEFORE moving to native mode
  - Native move will NOT adhere to 5.5 site restrictions and legacy DN rules
  - Now available:
    - Move user between admin groups
    - Multiple Admin Groups within Routing Group
    - Limited re-naming
- Native Exchange 2000 Organization does not support 5.5 Servers (consider 3rd party connectors)

Summary of Upgrade Options

method	Advantages	Disadvantages
In-place Upgrade	No extra hardware required	Downtime Can be difficult to recover
Move mailbox upgrade	Minimal impact to users Easy recovery Only option if replacing hardware Fresh start for server config, disks & databases	Extra hardware required Complicated logistics for remote offices
Leapfrog upgrade	Minimal impact to users Allows server re-config	Complicated logistics for remote offices Requires some extra hardware

For More Information…

- White Platform Exchange CD!
  - Loaded with White Papers, deployment guides from Exchange Site and TechNet, etc…
- White Papers
  - http://www.microsoft.com/exchange
- Exchange 2000 Resource Kit (on October TechNet)

Q & A

Where do you want to go today?®

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Dependence on Windows 2000 Active Directory

- Is the Exchange 2000 directory service
  - Stores configuration information in the Configuration Naming Context
  - Stores Recipient information in the Domain Naming Context
- Security Sub-system
- Directory Schema
- Basis of Exchange 2000 “GAL” and other address lists

Global Catalog Usage

- Exchange detects & keeps a list of usable Global Catalogs
  - Rule of thumb - One GC to four Exchange Servers
  - GC in each Windows site hosting Exchange 2000
- Preferred global catalogs used are those within the same Windows 2000 site as the Exchange 2000 server
- Recipient requests are distributed across all global catalogs in list
- If all GC’s in the list are no longer available, DS Access will add a new GC to the list
  - Registry entry to define GC usage list

Domain Controller Usage

- Used primarily to retrieve server configuration information
- Primary domain controllers used are those within the same Windows 2000 site and domain as the Exchange 2000 server
- Services all configuration requests to a single DC
- DS Access will choose a new DC if the existing DC in use is no longer available

System Permissions

- Based on two domain groups:
  - "Exchange Domain Servers"
    - Global group
    - Has (only) read permissions to Exchange Configuration container
    - Contains all servers running Exchange 2000 in the domain
  - "Exchange Enterprise Servers"
    - Local group
    - Has permissions to modify properties on all recipients and Exchange configuration objects
    - Contains all Exchange Domain Servers groups from all domains